

Section 02900

Seeding

PART 1 GENERAL

1.1 SCOPE

This section discusses temporary seeding requirements which includes but is not limited to, soil preparation, seed mixture, fertilizer, lime, mulch and asphalt emulsion tackifier.

1.2 RELATED SECTIONS AND PLANS

- A. Section 02050 - Surveying.
- B. Section 02205 - Impacted Material Excavation.
- C. Section 02275 - Erosion and Sediment Control.
- D. Part 6 - Statement of Work.
- E. Part 8 - Environmental Health and Safety, and Training Requirements.

1.3 REFERENCES

- A. State of Ohio, Department of Natural Resources (ODNR): Rainwater and Land Development, Ohio's Standard for Storm Water Management, Land Development, and Urban Stream Protection - 1996.
- B. Sitewide Excavation Plan, July 1997, Revision C.
- C. American Association of State Highway and Transportation Officials (AASHTO) M 140, Standard Specification for Emulsified Asphalt (1993).
- D. American Association of State Highway and Transportation Officials (AASHTO) M 208, Standard Specification for Cationic Emulsified Asphalt (1987).

1.4 SUBMITTALS

- A. Submit the following to the Construction Manager within thirty (30) calendar days from Notice to Proceed for review and approval:
 - 1. Mulch, asphalt emulsion tackifier, and fertilizers.
 - a. Manufacturer's product data and recommended methods of application for seed, mulches, lime, asphalt emulsion tackifier and fertilizer.
 - 2. Material Safety Data Sheet (MSDS) for lime, fertilizer, and asphalt emulsion tackifier.
- B. Submit certificate of compliance for the following within fifteen (15) calendar days before the seeding. Do not sow seed until the Construction Manager has reviewed and approved the certificates.
 - 1. Certificate stating seed mixture, guaranteed percentages of purity, weed content, germination of seed, name of seller, the test date for the seed, and the net weight and date of shipment.
 - 2. Manufacturer's certificate stating the available nutrients contained in the proposed fertilizer;
 - 3. Manufacturer's certificate stating the lime meets the requirements of this Section;
 - 4. Manufacturer's certificate stating the wood cellulose mulch meets the requirements of this Section; and
 - 5. Manufacturer's certificate stating the asphalt emulsion tackifier meets the requirements of this Section.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver containerized materials in uniform packages bearing the name of the manufacturer, the net weight and a statement of content. Deliver containerized materials to the site in original, properly labeled, unopened, clean containers each showing the manufacturer's guaranteed analysis conforming to applicable regulations and standards.
- B. Store materials in a dry area in a manner to prevent physical damage.

1.6 HEALTH AND SAFETY REQUIREMENTS

Environmental Health and Safety, and Training requirements shall be as specified in Part 8.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Furnish seed labeled in accordance with the U.S. Department of Agriculture (USDA) Rules and Regulations and applicable State seed laws. Furnish seed in sealed bags or containers bearing the date of expiration. Do not use seed after its expiration date. Each variety of seed shall: have a purity of not less than 90 percent, have a percentage of germination not less than 80 percent, have a weed to seed content of not more than 0.75 percent and contain no noxious weeds. The above percentages are by weight.
- B. Seed mixture for temporary seeding shall be as follows:
 - 1. Creeping Red Fescue - 20 pounds/acre.
 - 2. Annual Ryegrass - 10 pounds/acre.
 - 3. Kentucky Bluegrass - 15 pounds/acre.
 - 4. Alsike Clover - 5 pounds/acre.
 - 5. Flatpea - 5 pounds/acre.
- C. Obtain water from the on-site sources shown on the Construction Drawings and specified in Part 6, unless otherwise approved by the Construction Manager.
- D. Fertilizer:
 - 1. Use fertilizer that is dry or liquid commercial grade fertilizer, uniform in composition that meets the requirements of all State and Federal regulations and standards of the Association of Agricultural Chemists.
 - 2. Fertilizer shall be VCOTE 34-0-14 as manufactured by George W. Hill, Inc. No substitution allowed.
- E. Furnish mulch meeting the following requirements:
 - 1. Mulch shall be straw or wood cellulose fiber, free of clay, stone, foreign

substances, and reasonably free of weeds.

2. Furnish straw that does not contain sticks larger than 1/4-inch diameter or other materials that may prevent matting down during application. Use straw that is free from mold and other objectionable material and in an air-dry condition suitable for placing with mulch blower equipment or other equipment as approved by the Construction Manager. Dust control during mulch blowing shall meet the dust control requirements specified in Part 6 and the Dust Control Plan specified in Section 02205. Straw shall be generally 6 inches or more in length.
3. Mulch applied by spraying shall be a wood cellulose processed into a uniform fibrous physical state. Use wood cellulose fiber containing a green dye that will provide for easy visual inspection for uniformity of slurry spread. The wood cellulose fiber including dye, shall contain no growth or germination inhibiting properties. The wood cellulose fiber shall be manufactured in such a manner that, after addition and agitation in slurry tanks with water, the fibers in the material become uniformly suspended to form a homogeneous material. When sprayed on the ground, the material shall allow absorption and percolation of moisture. The wood cellulose fiber shall meet the following requirements:

<u>Quantity</u>	<u>Specification Limit</u>
Particle Length	0.375 inch (maximum)
Particle Thickness	0.047 inch (maximum)
pH	4.0 to 8.5
Ash Content	1.6 percent (maximum)
Water Holding Capacity	90 percent (maximum)

- F. Furnish lime that shall be agricultural ground limestone with a minimum total neutralizing power of 90 percent. The lime shall have a material gradation of at least 40 percent passing the U.S. Standard Number 100 sieve, and at least 95 percent passing the U.S. Standard Number 8 sieve.
- G. Furnish asphalt emulsion tackifier for mulch conforming to AASHTO M 140 or AASHTO M 208. Asphalt emulsion tackifier shall be nontoxic to plants and shall be prepared so that it will not change in transportation or storage.

2.2 EQUIPMENT

Provide equipment of size and type to perform work specified in this Section.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

- A. Perform soil preparation by tilling/cultivating, to a depth of approximately 4 inches, to eliminate uneven areas and low spots. Maintain lines, levels and contours.
- B. Repeat cultivation in areas where equipment used for hauling and spreading has compacted subgrade.
- C. Temporary seeding shall be performed at completion of excavation. Stabilization of the inactive exposed excavation and other construction areas shall be as specified in Section 02275.

3.2 APPLICATION

- A. Apply fertilizer, lime, seed, mulch and asphalt emulsion tackifier to disturbed areas and areas excavated and graded in this Contract requiring seeding unless otherwise indicated.
- B. Application of Fertilizer:
 - 1. Apply fertilizer at a uniform rate of 12 pounds per 1000 square feet.
 - 2. Apply agricultural lime at a rate of two tons per acre.
 - 3. Disc lime and fertilizer thoroughly into upper 2 inches.
 - 4. Lightly water to aid the distribution of fertilizer.
- C. Sequence of application of temporary seeding mixture, mulch and asphalt emulsion tackifier:
 - 1. Apply temporary seed mixture at the minimum rate as specified in this Section. Seeding shall be done by hydroseeding or by drilling to a depth of 0.25 inches followed by cultipacking.
 - 2. Do not seed areas in excess of that which can be mulched within 24 hours.
 - 3. Seeding season for temporary seeding shall be March 1 through October 31.
 - 4. Within 24 hours following seeding, apply mulch.
 - 5. Mulch shall be spread in a 1 to 2 inch layer.
 - 6. Apply water with a fine spray immediately after each area has been mulched. Wet soil at approximately a rate of 120 gallons per 1,000 square feet.
 - 7. Apply asphalt emulsion tackifier at the rate specified in this Section.

- D. Spread straw mulch, either by hand or by blowing method, at the rate of 2 air-dried tons per acre.
- E. Apply sprayed wood cellulose fiber, in lieu of straw mulch, at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a ratio of 50 pounds of wood cellulose fiber per 100 gallons of water.
- F. Maintain mulching material in place with an asphalt emulsion tackifier. Apply asphalt emulsion tackifier at a rate of 120 gallons per acre.

3.3 MAINTENANCE

- A. Maintain the seeded areas in satisfactory condition until acceptance of the seeding by the Construction Manager. Maintenance of the seeded areas includes repairing eroded areas, revegetating when necessary, watering and mowing (if applicable). A satisfactory condition of the vegetated area is defined as follows:
 - 1. An area shall have a good, clean stand of perennial grass.
 - 2. Within 3 weeks, germination must occur over 95 percent of the area with no single bare area greater than 3 square feet.
 - 3. Within 3 months, 95 percent of the area must be covered with mature perennial grass.
- B. Areas that fail to meet these requirements shall be repaired or reseeded as necessary to produce an acceptable stand of grass, as specified in this Section.

3.4 WARRANTY

- A. Seeded areas shall be subject to a warranty period of not less than 24 months from initial establishment of temporary seeding over 100 percent of the seeded areas.

- B. At the end of the warranty period, the Construction Manager will perform an inspection upon written request by the Contractor. Seeded areas not demonstrating satisfactory condition of vegetation as specified herein, shall be repaired, reseeded and maintained to meet all requirements, as specified herein, at the Contractor's expense.

3.5 ACCEPTANCE

- A. The seeded areas will be accepted at the end of the warranty period if a satisfactory condition exists as defined in this Section.
- B. After necessary corrective work has been completed, the Construction Manager will certify in writing the final acceptance of the seeded areas.

END OF SECTION

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9 of 8

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